

ABSTRACT OF THE DISCLOSURE

Disclosed are methods for efficiently and economically designing, constructing, or operating a light hydrocarbon gas liquefaction process for the liquefaction of selected quantities of light hydrocarbon gas. The method includes a light hydrocarbon gas liquefaction launch train to liquefy an initial amount of light hydrocarbon gas and one or more optional subsequent modular expansion phases to said light hydrocarbon gas liquefaction train to liquefy additional selected quantities of light hydrocarbon gas up to a selected maximum quantity of light hydrocarbon gas for the process. The methods employ shared use facilities, such as light hydrocarbon feed gas pre-treatment facilities, refrigerant compression facilities, cryogenic heat exchange facilities, access services, other liquefaction equipment, and liquefied product storage and shipping facilities. The use of such shared use facilities allows for subsequent expansion phases or modules to be constructed to increase overall plant capacity, which can reduce the capital costs and space needed relative to prior methods for the design, construction, or operation of a light hydrocarbon liquefaction process which call for construction of a complete liquefaction train and all of its associated components and related equipment.